25X1

FY-66 Quarterly Report No. 4

PAR 243
31 May 66

SUBJECT: Briefing Print Enlarger (Prototype)

TASK/PROBLEM

1. Design, fabricate and test a prototype briefing print enlarger (BPE) based upon tests and observations of the breadboard equipment developed on the combined PAR 202/224.

DISCUSSION

2. Breadboard enlarger tests, mechanical design studies, and the production of drawings for parts fabrication (detail drawings) have been made during this quarter.

3. Four of the six lenses planned for black-and-white printing have been tested for use on "Polycontrast" type print stock. The print image quality is essentially equal to that obtained on "Kodabromide" print stock. The remaining two lenses, which have not been tested with Polycontrast material, are quite similar in optical design to one of the four tested. It is safe to conclude that Polycontrast-type material can be used on the BPE to produce good-quality prints.

4. From the same series of tests on four of the six lenses, we are confident that the five lenses providing magnification from 3X to 39X can be used for exposing color prints. Additional color testing, including making color prints, is planned for these lenses.

5. Tests to measure the stable temperature reached in the negative gate with an extended exposure and a 500-watt source showed problems in the breadboard enlarger. The color filter and the plastic condenser element were damaged by heat. In the design of the prototype enlarger a second heat absorber element will be provided and air at a moderate velocity will cool the filters, condenser elements, and lamp. The light source for the prototype enlarger will be the same as that used on the breadboard enlarger; a 300 watt tungsten projection lamp.

6. The basic design arrangement has been established and approximately 80% of the detail drawings made for the following:

a. Negative transport.

b. Print stock platen, carriage, and drive, including the focus table drum.

c. Objective lens interchange mechanism.

d. Objective lens focus mechanism and revised focus indicator.

7. Assembly drawings are yet to be made for these portions of the enlarger. However, the design and drafting effort is about 65% complete.

8. The design study portion of the lamphouse design effort is complete and about half of the detail drawings are made. Over-all design and drafting effort is about one-third complete on this unit. Additional manpower will be available soon to aid on completing this design.

9. Some design study effort has been made on all of the recognized remaining mechanical assemblies including:

a. Coordinate counters.

b. Fume venting system.

c. Film drying (immersion fluid).

d. Platen blower enclosure.

e. Easel photometer.

10. The mechanical portion of the breadboard unit to test the planned arrangement of the easel photometer was completed and was being electrically connected to a Macbeth EP-1000 photometer power chassis at the end of the quarter.

11. During the quarter, on 9 and 10 May, we were visited by customer's representatives. The revised proposal, PAR 243A, including a tentative specification, was presented and discussed. The design concepts of the various units mentioned above were described from the design study drawings. No changes in approach were requested.

PLANNED ACTIVITY

12. Continue design studies and production of detail drawings, and make assembly drawings.

13. Test the breadboard model easel photometer and start design of the prototype unit, if the approach is satisfactory.

14. Fabrication releases for about 90% to 95% of all the parts in the prototype model will be made during the quarter. Some sub-assembly work may also be started during the quarter.